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A State of the Environment Fact Sheet

The Inuit economy — sustaining a way of life

The Canadian Arctic, despite an apparently inhospitable climate, hosts some of North America's most significant populations of wildlife. For example, hundreds of thousands of Barren-ground Caribou migrate to summer calving grounds on the tundra; a large proportion of migratory bird species depend on arctic habitats during critical parts of their life cycles; and long-lived Lake Trout and Arctic Charr populate the lakes and rivers. The Inuit's dependence on wildlife forms the basis of their society, culture, and economy.

About 80% of Inuit hunt, fish, or trap caribou, fish, marine mammals, and other wildlife

About 80% of Inuit hunt, fish, or trap caribou, fish, marine mammals, and other wildlife. Besides the harvesting of wildlife for food, the native domestic economy incorporates some generation of cash income from other wildlife-based activities, including the processing and sale of country food such as wild meat (including certain fats), the procurement of raw resources for the arts and crafts industry, and the making of clothing for domestic use and sale.

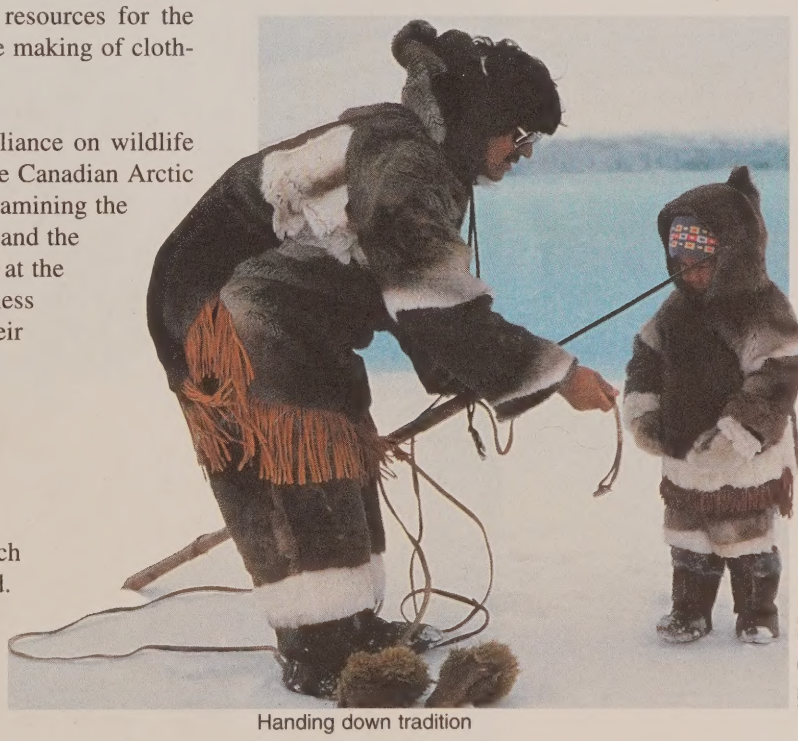
Because of the Inuit's reliance on wildlife for their domestic economy, the Canadian Arctic presents a unique setting for examining the links between the environment and the economy. This fact sheet looks at the Inuit's tradition of resourcefulness in the Arctic, the changes to their culture that occurred with the arrival of the Europeans, the current state of their economy, and the strategies being implemented at local through to international levels to sustain the resources on which they depend for their livelihood.

A tradition of resourcefulness

Historical perspective

Prior to European contact, the Inuit population was grouped into extended families (five to six persons per family) and hunting groups (six to ten families per group). The people were traditionally nomadic, travelling in winter by dog team and in summer by foot and by kayak in quest of caribou, seals, whales, fish, and Walrus.

As a general rule, families dispersed from their larger coastal winter campsites in the spring to hunt seals on the ice. During the ice-free months, they often moved inland to fish at lakes and to hunt caribou. At the beginning of winter, family groups would converge and return to the sea ice to hunt seals again.



Mike Beedell

Handing down tradition

Where the Inuit live — the Arctic

For the purposes of this fact sheet, the Canadian Arctic can be defined as those terrestrial areas north of the treeline that experience continuous permafrost and mean temperatures less than 10°C in the warmest month, less than –30°C in the coldest month, and below –10°C average for six or more months of the year. This region, which encompasses 24% of Canada's land area and more than two-thirds of Canada's 244 000 km of coastline, includes all the islands of the Canadian Arctic Archipelago, the northern Yukon coastal plain, much of the continental Northwest Territories, northern Quebec and Labrador, and oceanic regions north of 60°N and Hudson and James bays.

Source: National Atlas Information Service, Canada Centre for Mapping, Natural Resources Canada.

The Inuit population

The Canadian Arctic is the most sparsely populated portion of the country. It has one of the lowest population densities in the world — one person per 100 km^2, roughly 1/280th of the Canadian average — and fewer than 45 communities. The total population is only 29 000 (about 0.1% of Canada's total population), virtually all of whom live in coastal communities. However, after close to a century of decline, the population growth rate in the Arctic has been increasing dramatically in recent decades, and the current population of 29 000 is expected to double in the next 25 years (Bone 1992).

The Inuit, who have occupied the region for a thousand years or more, form over 80% of the arctic population. The Inuit population includes several regional groups that share a common heritage and one language with several distinct dialects. It has traditionally been divided by anthropologists into several different cultures or *tribes* — including the Inuvialuit and Copper Inuit of the western Arctic; the Netsilik and Caribou Inuit of the central Arctic; the Iglulik and Baffinland Inuit of the eastern Arctic; the Ungava Inuit of northern Quebec; and the Labrador Inuit.

Population change in selected arctic communities, Northwest Territories, 1961–89

Source: Adapted from Bone (1992).

This pattern varied from region to region, depending on the seasonal distribution of wildlife. For example, residents of the Beaufort Sea region and of Pangnirtung and Pond Inlet on Baffin Island hunted whales during the summer, whereas Labrador Inuit would hunt whales in the fall as they migrated past the Labrador coast. While Inuit from the Northwest Territories moved inland to fish at lakes and to hunt caribou, many Labrador Inuit would travel to the offshore islands to fish for cod, salmon, and Arctic Charr.

Traditional ecological knowledge

Through a traditional way of life over many generations, the Inuit have developed an in-depth knowledge of the ecosystems in which they live. As hunters, they occupy the same ecosystems as their prey, and accurate observations and interpretations about wildlife behaviour, weather patterns, and other environmental factors are needed in order to survive. Aside from hunting, Inuit have traditionally spent hours observing and then discussing animals and the land. Lessons were learned, and the knowledge base became fine-tuned through direct experience of a subsistence lifestyle. This field of ecological knowledge or expertise is commonly known as *traditional ecological knowledge*.

The Inuit hunters' understanding of their environment and the skills and knowledge that they need to survive in it are built on associations between themselves, the land, the sea, and the wild animals. A basic tenet of Inuit culture is that humans and other animals are equals and that all have souls and spirit powers. This respect for wild animals led the Inuit to learn how to use their wildlife resources without destroying them so as to conserve them for future generations.

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In Labrador, for example, the Inuit had many rules regulating wildlife harvesting, including rules prohibiting the killing of animals during their breeding season, all of which ensured that species were not overharvested. In addition, the Inuit's nomadic lifestyle, diverse food storage methods, versatile diets, sharing systems, and spiritual taboos, together with the migratory habits of their prey, ensured that species were not overharvested.

Ningiqtuq, or sharing, has always been an important feature of Inuit culture and ensures that food reaches everyone, especially those elders unable to hunt for themselves. This informal system of allocating resources is a vital socioeconomic tool, providing everyone with access to food and the material resources of the community.

The passing on of knowledge from one generation to the next and the teachings of elders have resulted in a huge reservoir of information that has helped to guide the development of the sharing philosophy, to shape laws and customs, and to promote the value of sustainable living.

Exposure to outside cultures

Although the Inuit culture had been constantly evolving through the comings and goings of arctic peoples such as their Thule and Dorset ancestors, the arrival of Europeans in the Arctic, some as early as the 10th century, gradually exposed the Inuit to new cultures and goods, and many traditions began to undergo changes.

Changing economies

The change in the traditional Inuit way of life began to accelerate in the 1800s, with the intensification of the whaling industry and the arrival of missionaries intent on Christianizing the Inuit. The whaling frontier quickly advanced into the eastern arctic fjords and the more productive waters of the western Arctic when many thousands of Bowhead Whales, Belugas, and Walruses were discovered using the arctic coastal waters as summer feeding grounds. Wintering sites for whaling vessels were often chosen for their proximity to Inuit encampments.

The end of the 19th century coincided with the end of the commercial whaling period in the Northwest Territories. Whale populations had declined and in some cases had become extirpated because of commercial overharvesting. As well, whale oil and baleen were being replaced by hydrocarbon products and steel substitutes, and the whaling industry in the Arctic collapsed.

The whaling industry was quickly replaced by the fur trade, with Arctic Fox becoming a particularly sought-after commodity. While the fur trade was compatible with subsistence activities, it was only the fur and not the meat of the animal that had real value in the new economic system. Trapping Arctic Fox fit in nicely with subsistence hunting, and most families continued their nomadic existence. In the eastern Arctic, Arctic Fox formed the basis of Inuit–European commerce, and Ringed Seal remained the basis of subsistence. The fur trade did not decline until the late 1930s.

Changing settlement patterns

Changes in Inuit occupancy patterns began in the early 1800s. Rather than travelling inland in summer, the Inuit began to stay on the coast with whalers, where they were often hired as pilots, crew, seamstresses, and hunters. They also often stayed around the whaling overwintering areas.

With the rise in importance of the fur trade, some Inuit were moved from Cape Dorset to trading posts at Dundas Harbour, Fort Ross, Arctic Bay, and Taloyoak (Spence Bay). By the early 1920s, virtually all Inuit were living within travelling distance of a trading post, foregoing their traditional winter seal hunt for nontraditional trapping of Arctic Fox and the hunting of local wildlife species for consumption. Eventually this led to the creation of permanent campsites on the location of the trading posts.

The greater distances involved in harvesting meant that the Inuit had to rely even more heavily on foreign equipment for harvesting and on the trade in fur-bearing animals. This trend reached its climax in the mid-20th century with the resettlement of Inuit by the government and the introduction of new technology.

Changing technology

By the end of the 19th century, Inuit men had been given rifles, telescopes, and tools for hunting in exchange for fresh meat and fur clothing, and women cooked in metal pots and used steel needles, cotton thread, and woollen material in their sewing. These manufactured goods had been available a century earlier to Labrador Inuit, because of the earlier arrival of Europeans interested in trade on that coast.

The modern era brought with it a wide variety of technological advances and a whole new range of influences on Inuit culture and traditional lifestyle. Most hunting was now carried out using expensive modern machines and vehicles, such as snowmobiles, outboard motorboats, and three- and four-wheel motorcycles.

The introduction of new technology to the Inuit did not always result in the loss of traditional skills and knowledge; in fact, some new technologies required them to develop new skills. For example, when the Inuit replaced their dog teams with snowmobiles, they no longer had dogs with their keen sense of smell to locate the seal breathing holes beneath the dense snow covering the sea ice. Instead, the Inuit hunters had to learn how to locate these nearly invisible breathing holes while travelling on their snowmobiles.

Snowmobiles also increased the range at which hunters could function away from the community, thus relieving some of the hunting pressure on wildlife in the immediate vicinity of

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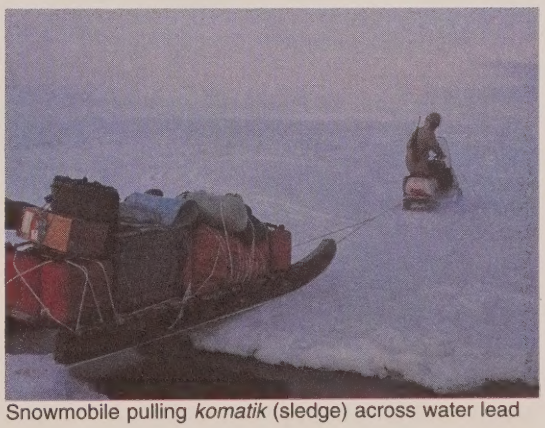
Inuk hunter



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Snowmobile pulling *komatik* (sledge) across water lead

a community. They did not, however, compensate for the effect that moving people from camps into settlements had on land use. Inuit still use less of the total hunting area than they used to, and the availability of snowmobiles may have indirectly led to decreased long-term use of camps on the land.

The impact on ecosystems of the use of technology depends on both the nature of the technology itself and how it is used, which is based on human value systems. Most modern technology, such as the use of rifles, snowmobiles, and motorized boats, has shown little evidence of a more serious impact on arctic ecology than that of dog teams, harpoons, and skinboats.

Country foods offer the Inuit the most economical and efficient investment of their scarce monetary resources

The current native economy

The capital of the Inuit economy is the harvesting equipment, its resources are the wildlife, and its organization is the family unit.

Harvesting wildlife resources for subsistence use

Although the Inuit use a variety of plants for food and medicinal purposes, animals, particularly marine mammals, are their main source of food. A diet of local meat and fish, called country food, can provide all the energy and nutrients that they require (Fig. 1). The consumption of all of the edible parts of a caribou or seal provides the majority of nutrients that would have to be obtained from a variety of food groups in a typical "southern Canadian" diet (Table 1).

Northern natives consume more country foods than most Canadian residents. Seal, caribou, Narwhal, fish, and Walrus account for 90% or more of the country foods consumed (Government of Canada 1991), providing the Inuit with a healthy diet from local sources at much less cost than food imported from the south.

Of all the renewable resource industries, the country food sector is the most closely tied to the subsistence economy. Country foods offer the Inuit the most economical and efficient investment of their scarce monetary resources. Numerous studies since the mid-1970s have reported that harvesting consistently provides a higher yield of food per dollar spent than can be bought with money earned from wage labour (Wenzel 1992).

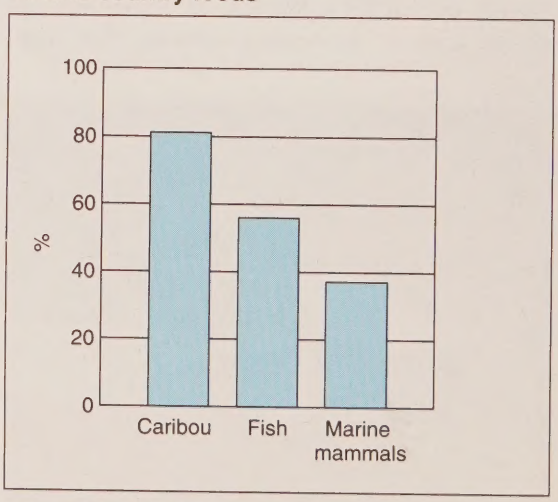
Although a wide variety of imported foods are available in all arctic communities, the cost to import domestic meat from the south to replace the wild country foods consumed in the Northwest Territories is high. For example, the 450 residents of Clyde River, Baffin Island, were found to consume about 100 t of seal meat each year. To purchase the equivalent amount of imported foodstuffs, the residents would have had to spend $1 million (Bone 1992). As well, country food is a much richer source of a number of

Table 1
Key nutrient sources in caribou

Animal part	Nutrients
Meat	Protein, fat, iron, vitamin A, riboflavin, niacin
Organ meats (heart, liver, kidney)	Protein, iron, vitamins A and C, riboflavin, niacin, thiamine (liver also contains calcium)
Blood	Iron, protein
Bone marrow	Fat and small amounts of iron, thiamine, riboflavin, niacin, and vitamin A
Intestines and web covering stomach	Fat, iron, riboflavin, niacin, calcium
Stomach contents	Calcium, vitamins A and C, fibre, riboflavin, niacin, carbohydrates
Back fat (tallow)	Fat, vitamins A, E, K
Soft ends of bones	Calcium, phosphorus
Brain	Fat, protein, vitamin C
Eyes	Vitamin A

Source: Hall (1989).

Figure 1
Percentage of Inuit residents consuming various country foods



Source: Wong (1985).

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Seal hunting in a motorboat

elements — such as iron, magnesium, and calcium — than imported foods; for example, seal meat has 6–10 times the iron content of beef.

Animals satisfy needs above and beyond their food value. Caribou hide clothing is exceptionally warm and protective against the harsh winter climate. Sealskin kamiks are excellent footwear for cold arctic conditions. Furs of many kinds are widely used for mitts and parka-hood trim. Caribou hides and skins are used for tents, bedding, and kayak covers, and bone and ivory are used for tools and weapons.

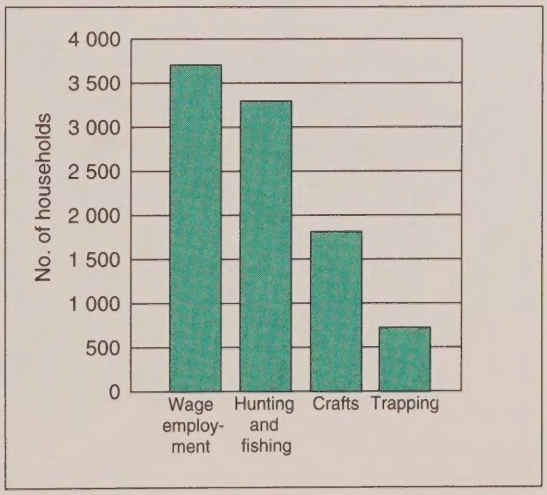
The domestic use by the Inuit of local resources means that fewer expensive equivalent goods have to be imported from southern Canada. The economic value of this domestic activity is now being recognized by some economic analysts (Usher and Weihs 1989).

The harvesting economy has changed a great deal over the past century. Perhaps the most significant change has been the introduction of cash as a necessary resource for the operation of the system. Harvesting is now a mixed economy, with subsistence and monetary elements coexisting.

Wage employment

Income earned from wage occupations in the areas of mining, oil and gas development, construction, services, and government supplements the native domestic economy. However, most Inuit consider themselves to be hunters on either a full-time or part-time basis, balancing casual or seasonal wage employment with hunting (Fig. 2). To those Inuit employed full-time as wage earners, weekend and part-time hunting remains an important means of supplementing their food supplies with preferred kinds of meats, and hunting is valued for its contributions to independence, self-esteem, respect from others, traditions, and a healthy lifestyle.

Figure 2
Inuit households involved in wage employment and traditional activities in the Northwest Territories



Source: Government of the Northwest Territories (1991).

Differing cultural perceptions — the anti-fur trade movement

People of one culture often have difficulty understanding those of another culture. For example, many outside the North have difficulty understanding and appreciating the great importance in Inuit culture of harvesting local wildlife, whether the harvesting is conducted for subsistence purposes or to generate the cash income required in the modern economic system. Such a lack of understanding contributed to objections by protest groups regarding the killing of wild animals, especially the use of what were sometimes viewed as inhumane killing techniques.

The animal rights campaigns of the 1980s had devastating impacts on Inuit communities, which were earning up to 60% of their income from seal hunting at the time. In 1980, one sealskin could bring in $23. The 1982 sealskin ban by the European Economic Community basically destroyed the sealskin market, and the value of a pelt dropped to $7 in 1985.

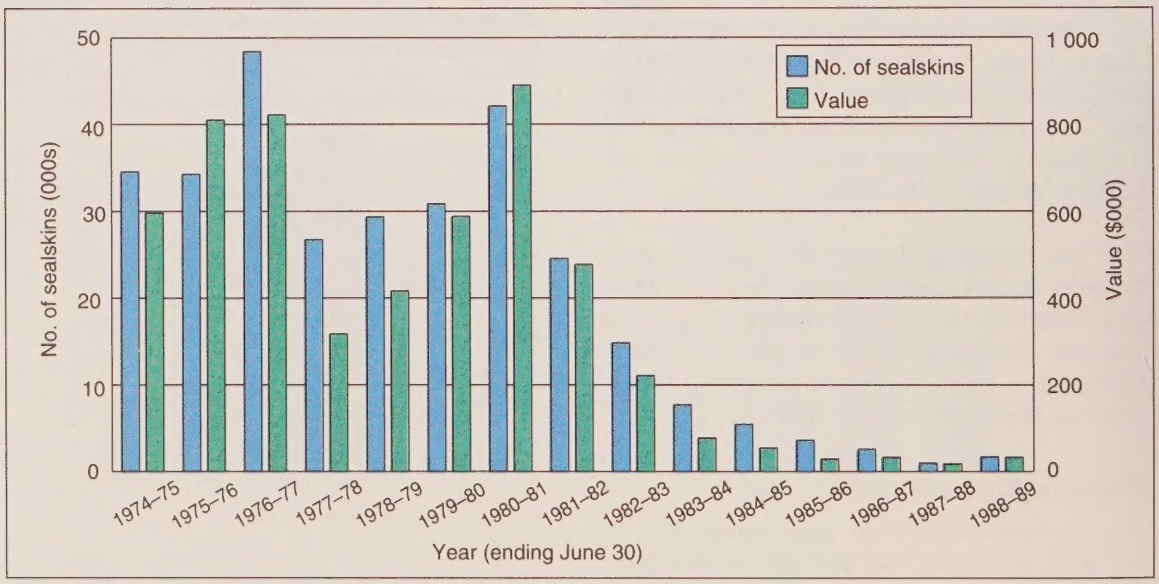
The anti-sealing and anti-fur-trapping campaigns unintentionally alienated the Inuit from the resources that they had customarily depended on for their cultural independence. Even if it will not rectify the damages done, some environmental organizations have defended indigenous harvesting, and some others have retracted their positions opposing it.

The commercial economy

Furs and hides: Ringed Seal skin prices hit new highs each year in the 1970s, and in 1976 the skins contributed $1.5 million to the economies of Inuit communities in the Northwest Territories, Quebec, and Labrador. Although the animal rights campaigns in the 1980s caused a dramatic decline in the sealskin market (Fig. 3), with a substantial impact on the native economy, fur production remains an important part of the Inuit economy. In the Northwest Territories, Polar Bear harvesting is strictly controlled by a territorial government quota system, which allots a certain number of animals to be harvested annually by each community. The Newfoundland government allocates, on an annual basis, four Polar Bears to be taken by Labrador Inuit.

In an effort to revitalize the sealskin market in the late 1980s, the northern-based Nunasi Corporation started a leather business that is devoted to the marketing of fine sealskin products. The Inuvialuit and the Government of the Northwest

Figure 3
Sealskin production and value to arctic communities, Northwest Territories, 1974–89



Source: Government of the Northwest Territories (1990).

Territories have also started a fur coat shop using furs obtained in the area. Small-scale community-based tanneries for sealskins have also been proposed.

Meat harvesting: Current commercial production of caribou and Muskox for food is valued at $1.5 million, engaging 80–100 hunters. One example of commercial marketing of country foods is the community of Cambridge Bay, where both caribou and Muskox meat are processed, packaged, and distributed to consumers across the Northwest Territories. In addition to making these meats widely available, the company is supplying income to harvesters in the region. A further example is the commercial harvest of Muskox on Banks Island. Since 1991, over 4 000 animals have been harvested for export from the island to markets outside the Northwest Territories. Since 1986, Labrador Inuit have been developing a modest annual commercial harvest of George River caribou for export of meat to domestic and international markets through the Labrador Inuit Development Corporation.

Fishing: Labrador Inuit have over 100 years of commercial fishing experience, with cod, salmon, and charr being the traditional species. With the current collapse of the cod fishery, Labrador Inuit are now exploring opportunities for expanding into trade in nontraditional species, such as shrimp and turbot.

In the eastern Northwest Territories, commercial fishing is currently being promoted as a new industry. Although much of the fishing is still in the exploratory or development stage, the Pangnirtung Fisheries Marketing Board fishery on Baffin Island generated $1.5 million in sales in 1993. The fishery processed 374 t of turbot as well as 43 t of charr, employing 33 workers and purchasing fish from 98 Inuit harvesters.

Tourism: Since the mid-1980s, ecotourism has become very popular in the Arctic. Dog team expeditions, naturalist lodges, and floe edge naturalist tours are attracting visitors from around the world. Silas Lodge on Wager Bay is an example of this type of venture. The expertise of Inuit guides makes this type of tourism both a safe and exciting way to explore the Arctic's ecosystems.

Some aspects of the traditional Inuit economy are integrated into the tourism industry in the form of big game hunting for Polar Bear, Muskox, and Barren-ground Caribou. In 1993, 16 licensed outfitters in the Northwest Territories offered these hunts across the Arctic. Polar Bear hunts, the backbone of this industry in the Northwest Territories, take five to six days of travel by dog team in the Resolute area, with hunters accompanied by a guide and helper.

The Department of Renewable Resources of the Government of the Northwest Territories allocates a set number of Polar Bear tags to each

Labrador Inuit have over 100 years of commercial fishing experience, with cod, salmon, and charr being the traditional species

Tessa Macintosh, Government of the NorthwestTerritories

Family tea break

interested community, which, in turn, must decide how many tags of its quota will be used for sport hunting. About 60 hunts are sold each year in the Northwest Territories. In the Resolute area, where 10–12 hunts were sold in 1993, a Polar Bear hunt averages $15 000, of which more than half is left in the community.

Traditional crafts: Since the 1950s, another important source of cash income for harvesters has been the production of arts and crafts from bone, ivory, soapstone, and hides. According to the 1989 Northwest Territories Labour Force Survey, the level of involvement in traditional crafts, such as needlecraft, printmaking, and carvings, was 30% for Inuit, the majority on a part-time basis.

With a culture and economy based on wildlife harvesting, Canada's Inuit have the greatest stake in protecting arctic ecosystems

In a number of eastern arctic communities of the Northwest Territories, income from carving grew to levels far beyond that from the sale of furs. Like fur sales, carving was a flexible source of income that could be adapted to the needs and schedules of harvesting. In 1980–81, total income for carvers was approximately $3.6 million in the Northwest Territories. By 1982–83, this had declined by 62%, exhibiting the same instability as fur markets. The carving industry in the Northwest Territories has been recovering since 1983.

Income supplement programs

Today, hunting, trapping, and fishing are not economically viable without a subsidy. Annual capital and operating costs for harvesting activities may run to more than $10 000 per harvester. However, harvesting provides the basic food supply for most communities. If harvesting were to decline as the major source of food, country food would have to be replaced by expensive imported food; this could result in higher levels of subsidies to support the nutritional needs of the people.

Some examples of income supplement programs that enable Inuit to preserve their traditional hunting, trapping, and fishing activities and guarantee communities a supply of country food from such activities include the following:

- paying Inuit harvesters of northern Quebec to bring meat into town for distribution to those who cannot hunt;
- the Wildlife Harvester Income Security Program, which is part of the James Bay and Northern Quebec Final Agreement in Quebec and provides income for full-time hunters;
- the Outpost Camp Program in the Northwest Territories, which assists families who want to pursue a more traditional way of life; and
- under the Nunavut Final Agreement, the proposed Income Security Program, to be implemented in 1994, to ensure a minimum level of cash income to those Inuit whose livelihood is wildlife harvesting and who are pursuing the activity on a full-time basis.

Living sustainably

With a culture and economy based on wildlife harvesting, Canada's Inuit have the greatest stake in protecting arctic ecosystems. Hundreds of years ago, Inuit environmental and economic strategies were based on Inuit customary law and reflected the nomadic lifestyle that both linked and separated social groups. These regulations stipulated the use and management of many of the natural resources and preserved social and economic order among the Labrador Inuit.

Today, strategies to sustain the resources upon which the Inuit depend for their survival and their livelihood require the participation of local, regional, national, and even international interests.

Land claim agreements

To be successful, strategies for environmental and economic sustainability in the Arctic require the full participation of the Inuit. The Labrador Inuit are the only remaining Inuit who have not settled their outstanding aboriginal land claims. Labrador Inuit believe that the only hope for environmental protection and responsible management of resources in northern Labrador is a land claim settlement that provides for the basic principles reflected in the Nunavut Final Agreement (for the eastern and central Arctic, signed in 1993). The other land claim agreements include the Inuvialuit Final Agreement (for the western Arctic, signed in 1984) and the James Bay and Northern Quebec Final Agreement (signed in 1975, but does not cover offshore areas).

Specific co-management bodies have been formed under the comprehensive land claim agreements. Among their many functions, they advise on relevant local, regional, and international harvesting matters, including recommending appropriate quotas.

Under the Inuvialuit Final Agreement, for example, there is the Wildlife Management Advisory Council, advising on wildlife management within the Northwest Territories portion of the Inuvialuit Settlement Area; and the Fisheries Joint Management Committee, which manages access to offshore waters and carries out research on subsistence quotas.

In the Nunavut Final Agreement, there are provisions for the Nunavut Water Board, which will regulate the use and management of water; and the Nunavut Wildlife Management Board, which will study and advise on issues related to fisheries and wildlife and allow beneficiaries of the agreement to play an effective role in all aspects of wildlife management within the claim area.

In the James Bay and Northern Quebec Final Agreement, there is the James Bay Coordinating Committee for Wildlife, advising on wildlife management within the claim area. The offshore areas were not part of the original agreement and have recently been accepted by the government for negotiation.

Adherence to the provisions of these land claim agreements should help to ensure that the Inuit will have more control over the way they live than in the recent past and, ultimately, to protect the Inuit way of life.

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The Nunavut Final Agreement

A modern-day treaty, the largest ever concluded in Canada, the Nunavut Final Agreement includes 41 Articles. The Inuit will exchange aboriginal rights to all lands and waters for defined rights and benefits, which include 350 000 km^2 of land, of which about 10% include mineral rights.

The Nunavut Final Agreement is far more detailed than other settlements, particularly in the area of new institutions to manage natural resources. The agreement requires that new natural resource management institutions be set up, in which Inuit are guaranteed 50% membership with decision-making powers. This is in contrast to the Inuvialuit Final Agreement, under which the natives have only an advisory role in environmental management as opposed to actual decision-making powers.

The greatest difference between the Nunavut Final Agreement and other northern comprehensive land claim agreements lies in the provisions for political development in Nunavut. As a requirement of the Nunavut Final Agreement, the Government of Canada will recommend to Parliament legislation to establish a new Nunavut Territory, with its own Legislative Assembly and public government, separate from the government of the remainder of the Northwest Territories.

Provisions of the Nunavut Wildlife Agreement, part of the Final Agreement, reflect the reality that wildlife will continue to provide the basis of a viable resource economy for Inuit in the future, giving the Inuit a legal right to harvest. The provisions give priority in the allocation of harvesting quotas first to personal consumption, then to hunters and trappers associations and to regional wildlife organizations for the development of commercial enterprises based on wildlife harvesting. Inuit organizations will have the right to first refusal in establishing new sports hunting, fishing, and naturalist lodges; in establishing operating facilities for animal husbandry; and in the marketing of wildlife, wildlife parts, and wildlife products.

Complementing the system of wildlife management will be a system of environmental management that will play an essential role in providing long-term environmental protection for the wildlife harvesting and renewable resource economy.

The integration of traditional and scientific knowledge

In 1991, the Canadian Arctic Resources Committee, the Environmental Committee of Sanikiluaq, and the Rawson Academy of Aquatic Science initiated the three-year Hudson Bay Program to assess the cumulative impacts of human activities on Hudson and James bays, to develop plans to protect marine, estuarine, and freshwater ecosystems, and to devise strategies to bring sustainable practices to other resources. The program includes the indigenous people of the region as an essential management and research component, bringing together both scientific and traditional knowledge (Anonymous 1993).

Arctic contaminants

As there are comparatively few industrial activities located in the Canadian Arctic, ambient contaminant levels are generally lower than in southern Canada. However, pollutants such as soot, acid-forming substances, polychlorinated biphenyls (PCBs), pesticides, and heavy metals are appearing in the Arctic, thousands of kilometres from their sources in the industrialized regions of the world. The long-range transport of these contaminants is increasingly being viewed as the most significant threat to environmental quality in the Arctic.

Source: National Atlas Information Service, Canada Centre for Mapping, Natural Resources Canada; adapted from Twitchell (1991)

The Government of the Northwest Territories has a traditional knowledge policy that is currently being incorporated in its programs and services. One of the many examples of the integration of traditional and scientific knowledge is the hiring of experienced hunters to assist biologists. As well, Arctic College's Environmental Technology Program has begun a Traditional Knowledge Project to involve Inuit elders and community members in developing and teaching the course material. Inuit science philosophies and Inuktitut names for animals, harvesting techniques, and places are being documented.

The Inuvialuit are actively developing community conservation plans that are intended to guide resource management and thereby sustain vital elements of the domestic economy and culture, and they have carried out numerous studies that make use of traditional knowledge. Inuit representation on various wildlife management and other boards also facilitates the integration of traditional knowledge in management practices.

Canada's arctic ecosystems are particularly vulnerable to the effects of contaminants. For example, cold temperatures and reduced ultraviolet radiation slow the degradation of organic chemical contaminants. As a result, once in the arctic food webs, these contaminants tend to endure for longer periods of time than they would at southern latitudes. As many of them are considered toxic, there are potential implications for arctic biota, as well as for the health, economy, and culture of all arctic peoples.

Through the global circulation of air, the arctic stratosphere is also receiving pollutants that are depleting ozone levels. The largest depletions in stratospheric ozone in 1992 were over western Canada and the Arctic during the early spring. Excessive exposure to medium-wavelength ultraviolet radiation (UV-B) is known to increase the incidence of sunburns, skin cancer, cataracts, and damage to the immune system in humans and to cause disruption of marine food chains. Reduction of stratospheric ozone could also contribute to changes in world climatic patterns. The full effects of this destruction on the arctic ecosystem are as yet not well understood.

The enhanced greenhouse effect also has particular relevance to the Arctic. Climate models predicting a global temperature rise of 1.5–4.5°C over the next several decades also suggest that the arctic region will likely see the largest amount of annual winter warming. This prediction has led to concern over the possible physical, biological, and socio-economic impacts that might accompany the warming. These impacts, and whether the warming will occur gradually or rapidly, are not yet well understood.

Sustaining renewable resources

Selective harvesting of arctic animals for their meat or for their skins has been occurring for centuries through the vehicle of traditional ecological knowledge. Today, a set of scientific conservation practices is being added to the native conservation practices, as the harvesting of arctic animals also occurs for scientific research purposes. To preserve the existing balance, population dynamics and ecosystem linkages must be understood and realistic harvest quotas imposed to ensure that species do not become at risk.

Selective harvesting of arctic animals for their meat or for their skins has been occurring for centuries through the vehicle of traditional ecological knowledge

The following provides a few examples of strategies intended for the sustainable use of renewable resources:

Local level: Conservation strategies for wildlife have been developed in the Northwest Territories under local management agreements between local hunters and trappers associations and the Government of the Northwest Territories for each Polar Bear population. Nine co-management agreements are in place; the final two will be developed this year.

Territorial level: The Northwest Territories Sustainable Development Policy (1990) applies the concept of sustainable development to all decision-making related to natural and heritage resources.

Federal level: The central goal of the Green Plan's Arctic Environmental Strategy is to secure for current and future generations a safe and healthy environment and a sound and prosperous economy. Actions include monitoring water pollution and the long-range transport of

contaminants and determining their impacts on northern ecosystems and native diets and providing assistance to northern communities in meeting economic and environmental objectives. However, despite its commitment to addressing arctic problems, the Arctic Environmental Strategy is restricted to those areas of the Arctic incorporating federal Crown lands, so the funding available through this plan is not accessible by Quebec or Labrador Inuit.

Bilateral level: Two examples are the Greenland Protocol (1989), which is a program of cooperation in such areas as wildlife harvesting and research between the Greenland Home Rule Government and the Government of the Northwest Territories, and the Canada/U.S. International Porcupine Caribou Board (1987), which ensures adequate management of this herd over its entire range.

International level: Two initiatives specific to the circumpolar Arctic that will guide sustainable development in a way that will safeguard the arctic environment for future generations and in a manner compatible with nature are the multigovernment Arctic Environmental Protection Strategy, put in place to identify, monitor, and review the nature of environmental circumpolar problems; and the Inuit Circumpolar Conference, a nongovernmental organization representing Inuit from Canada, the United States, Kalaallit Nunaat (Greenland), and Russia. The conference has brought circumpolar Inuit together since 1977 to address a wide range of topics, including those dealing with the power of aboriginal peoples resident in the Arctic to control their own affairs, and has proposed the Inuit Regional Conservation Strategy.

Nonrenewable resource activity

Inuit organizations are becoming major economic actors in the nonrenewable resource sector through land ownership, compensation payments, and co-management institutions

The Arctic is rich in mineral and hydrocarbon resources. Significant mineral resources are already in production — for example, the base metal Polaris mine on Little Cornwallis Island, the Nanisivik mine on Baffin Island, and the Lupin and Colomac gold mines on the mainland — and several others are possible, although the viability of such projects may depend on additional public investments in infrastructure.

Inuit organizations are becoming major economic actors in the nonrenewable resource sector through land ownership, compensation payments, and co-management institutions, and they are increasingly in a position to facilitate the participation of their members in the arctic money economy. The Labrador Inuit Development Corporation, for example, operates a quarry site for anorthosite on an offshore island a few kilometres from Nain. The anorthosite is quarried in 10-t blocks for export to Italy.

Although hydrocarbon reserves have been discovered in the Beaufort Sea, the Mackenzie Delta, the Arctic Islands, and Hudson Bay, the production of oil and gas in the Canadian Arctic is not economic at current world oil prices. The case of hydrocarbons and the energy industry is an example of cross-sectoral issues, where the potential for conflicts of interest exists. National energy independence, global energy needs, prevention of ecological degradation, and protection of the traditional culture of Inuit people are all at stake.

Controversy regarding hydrocarbon development is ongoing. For example, exploration, drilling, and pipelines may prove disruptive to the Porcupine herd of Barren-ground Caribou in the course of their migrations, especially on their calving grounds. Other environmental concerns include the effects of oil-based drilling mud discharges and the risk of major spills during hydrocarbon exploration drilling or production in Lancaster Sound, the Arctic Islands, and the Beaufort Sea. However, the monetary resources associated with hydrocarbon development would stimulate the economies of communities that are struggling to maintain economic viability in the Canadian Arctic.

Conclusion

The environment is much more than just a source of food and income for the Inuit. Their society and culture are based on their relationship with the environment — in particular, on the harvesting of wildlife. These are the most important sources of the psychological well-being of individuals, of the social forms and social organizations of the communities, and of the identity and world view of the Inuit as a people.

Although the Inuit have a strong relationship with the land and its resources, and probably always will, this relationship is changing. Whereas hunting, trapping, and travelling for days or weeks at a time were major occupations

of the people in the past, over the years the relationship has become more sporadic and less intense — especially for young people, many of whom have never left their settlements. Yet, despite all the social, technological, and economic changes that have occurred in the Arctic, the Inuit culture is still built on the premise that, above all else, they are hunters and very much a part of their environment. The meaning of life for the Inuit is still found close to nature.

With a culture and economy based on wildlife harvesting, Canada's Inuit have a vested interest in protecting arctic ecosystems, which extend far beyond Canadian jurisdictional boundaries to encompass the circumpolar North. Local and regional stressors have an impact on these ecosystems, as well as activities in other parts of the globe. Stressors such as airborne contaminants, overharvesting, and nonrenewable resource activity transcend political boundaries to affect more far-reaching arctic ecosystems.

Although the physical and biological characteristics of arctic ecosystems are similar, political systems are markedly different, and thus perceptions, resource use, and resource management are also different. As arctic ecosystems are a resource hinterland for some groups and a homeland for other distinctive cultures, the need for sustainable development has become crucial for ensuring the integrity of arctic ecosystems and of those people who call it home.

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The meaning of life for the Inuit is still found close to nature

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For further information

Supplementary information on the Inuit economy and information on State of the Environment Reporting may be obtained from the following address:

State of the Environment Reporting
Environment Canada
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